Remarks

Favorable reconsideration of this application is requested in view of the above amendments and in light of the following remarks and discussion.

Claims 1, 3-6, 8-11, 13-16, 18-23, 25-30, and 32-36 are currently pending in the application. Claims 1, 6, 9, 11, 16, 21, and 27-30 are amended and Claims 32-36 are added by this amendment.

In the outstanding Office Action Claims 1, 4-6, 9-11, 14-16, 19-21, 23, and 27-30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,101,018 to Naiki et al. (Naiki) in view of U.S. Patent No. 6,246,463 to Hamada et al. (Hamada) and U.S. Patent No. 5,786,594 to Ito et al. (Ito '594). Claims 3, 8, 13, 18, and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Naiki in view of Hamada and Ito '594, and further in view of Japanese Publication No. 5-6077 to Nakayama. Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Naiki in view of Hamada and Ito '594, and further in view of U.S. Patent No. 5,471,236 to Ito. Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Naiki in view of Hamada and Ito '594, and further in view of U.S. Patent No. 5,774,248 to Komatsu. It is requested that the rejections of the claims be withdrawn for the following reasons.

The present invention is directed to multi-beam scanning devices (e.g., as recited in independent Claims 1, 11, 21, 27, and 29), as well as image forming apparatuses (e.g., independent Claims 6, 16, 28, and 30). Each of the independent claims recites a subassembly including a holder having a mounting portion, an engaging section, and a projection, an array or means for emitting a laser disposed on the mounting portion of the holder, a collimator lens disposed on the projection, and an aperture disposed on the projection to cover the collimator. A bracket defines an engaging hole, the engaging hole of the bracket surrounding

and contacting the engaging section of the holder. The holder and the bracket define voids configured to permit rotation of the holder relative to the bracket before securing the holder to the bracket.[1]

It is asserted that none of Naiki, Hamada, and Ito '594, disclose or render obvious the claimed features of a holder and a bracket defining voids configured to permit rotation of the holder relative to the bracket before securing the holder to the bracket, as recited in independent Claims 1, 6, 11, 16, 21, and 27-30.

In addition, the outstanding Office Action asserts in the paragraph bridging pages 2 and 3 that Naiki discloses that the interval between the light emitting points is equal to the minimum recording interval of 1200 dpi. However, Naiki does not teach or suggest that an interval D between the light emitting points is equal to the minimum recording interval d. Naiki shows in Figure 6 six light emitting points 2a-2f disposed at the interval D and shows in Figures 7A-7C corresponding light beam spots 30a-30f disposed at various distances. However, Naiki does not teach or suggest that the distance between two light emitting points 2a and 2b for example, is the same to the distance between the corresponding light beam spots 30a and 30b. Thus, the assertion of the outstanding Office Action that Figures 6 and 7C show the correspondence between the distance of the light emitting points and the light beam spots has no support in Naiki.

In other words, even if Figure 7C shows a distance between the light beam spots 30a and 30b to be 21.2 μm, there is no support in Naiki for asserting that the distance D in Figure 6 is 21.2 μm as asserted by the outstanding Office Action. Applicant notes that the light emitting points 2a-2f are different than the light beam spots 30a-30f.

[1] Non-limiting examples of the claimed features are discussed, in part, from page 13, line 26, to page 14, line 7, of the originally filed specification.

Assuming arguendo that Naiki discloses that D is 21.2 μm, the independent claims have been amended to recite that "the equal interval is ~~not greater~~ smaller than the minimum recording interval," which is different than the structure of Naiki. The claim amendment finds support in Claims 9 and 10. No new matter has been added.

Further, when the interval Pi between the light emitting points is smaller than the minimum recording interval Pi' as claimed, an aberration of a fθ lens 13 and a toroidal lens 14 can be relatively decreased compared to a case where Pi is equal to Pi'. Therefore, the optical properties of the claimed scanning device are enhanced.

Furthermore, when Pi is smaller than Pi', the interval between the parts of the claimed device can be decreased. Therefore, the claimed scanning device can also be miniaturized.

With respect to the Office Action's discussion of Ito '594, Ito '594 shows screws 24a-24d used to mount components, including a collimator lens housing unit 23, to a main plate 25. Ito '594 does not depict or describe the voids in the lens housing unit 23 or the main plate 25, however, permitting rotation of the lens housing unit 23 relative to the main plate 25, before being secured to one another.

For these reasons, Ito '594 cannot provide advantages provided by the claimed inventions. By way of specific non-limiting examples, in the claimed invention the subassembly including the laser array or means and collimator can be initially rotated relative to the bracket. After the position of the subassembly is adjusted such that light emitting points of the laser array are arranged in a line or substantially in a line (such as in a sub-scanning direction), the subassembly can be finally connected to the bracket. By this arrangement, precise adjustment of the laser array or means can be easily performed.[2] This

[2] As discussed from page 13, line 16 to page 14, line 13, of the originally filed specification.

type of alignment cannot be provided between the lens housing unit 23 and the main plate 25 of Ito '594.

Therefore, it is requested that the rejection of independent Claims 1, 6, 11, 16, 21, and 27-30 under 35 U.S.C. § 103(a) be withdrawn, and the allowance of independent Claims 1, 6, 11, 16, 21, and 27-30 is requested.

Claims 3-5, 8-10, 13-15, 18-20, 22, 23, 25, and 26 are allowable for the same reasons as the independent claims from which they depend, as well as for their own features. Therefore, it is requested that the rejections of dependent Claims 3-5, 8-10, 13-15, 18-20, 22, 23, 25, and 26 under 35 U.S.C. § 103(a) be withdrawn, and the allowance of dependent Claims 3-5, 8-10, 13-15, 18-20, 22, 23, 25, and 26 is requested.

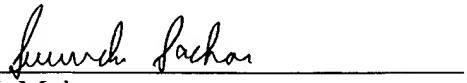
New Claims 32-36 are added to set forth the present invention in a varying scope and Applicant submits the new claims are supported by the originally filed specification. More specifically, new Claim 32 includes some features of Claim 1, and dependent Claims 33-36 include subject matter presented in Claims 1, 3, 4, and 5. No new matter has been added. Because independent Claim 32 recites the laser diode array that was discussed above with regard to Claim 1, it is respectfully submitted that new Claims 32-36 are allowable for similar reasons as discussed above.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1, 3-6, 8-11, 13-16, 18-23, 25-30, and 32-36 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Surinder Sachar
Registration No. 34,423
Attorneys of Record

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

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